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ABSTRACT OF THE DISCLOSURE

Apparatus and methods for placing conductive spheres on prefluxed bond pads of a substrate using a stencil plate with a pattern of through-holes positioned over the bond pads. Conductive spheres are placed in the through-holes by a moving feed mechanism and the spheres drop through the through-holes onto the bond pads. In one embodiment, the feed mechanism is a sphere hopper which crosses the entire through-hole pattern. In another embodiment, a shuttle plate fed spheres from a reservoir and reversibly moves about one-half of the pitch, moving from a non-discharge position to a discharge position.

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